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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/683,817

10/10/2003

Jordi Ferran

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EXAMINER

WILLIAMS, HOWARD L

ART UNIT

PAPER NUMBER

2819

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/683,817

Applicant(s)

FERRAN ET AL.

Examiner

Howard L. Williams

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 20-24 and 29-33 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-11, 13, 14, 16-19, 25-28, 34 and 35 is/are rejected.
- 7) ☐ Claim(s) 5, 12 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless –  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

Claims 1-4, 6-11, 13, 14, 16-19, 34, and 35 are rejected under 35 U.S.C. 102(b) as anticipated by Ohno et al. (US 5565864 A). Ohno et al. describes a position encoder which detects a plurality of encoder marks to form a pattern. Ohno uses a limited number of these patterns as absolute position signals and also determines relative position from the detected markings that are “non-transformable” in the language of Ohno’s description, i.e. incremental. The incremental marks drive the counter in conjunction with the clocking signal and provide a count of relative position from a recognized absolute position mark. Ohno et al. summarize these features in column 2, lines 9-30:

According to the first aspect of the invention, solving the above problems, there is provided an absolute encoder comprising a code plate formed with an absolute pattern having a plurality of bit patterns, each bit pattern consisting of a predetermined number of bits and representing one absolute position; detecting means relatively moving to said code plate, having a plurality of detecting elements opposed to a bit pattern of said predetermined number of bits, and reading said absolute pattern to output a bit pattern signal; absolute position transforming means which can transform, among a plurality of bit pattern signals corresponding to the plurality of bit patterns, only specific bit pattern signals corresponding to specific bit patterns into absolute positions; pattern signal changing means for successively changing the bit pattern signals until the bit pattern signal read by the detecting means coincides with one of the specific bit pattern signals transformable by the absolute position transforming means; and calculating means for calculating information on a position of said code plate relative to said detecting means, based on the transformable bit pattern signal and a number of changes effected by said pattern signal changing means

By the amendment of 10 March 2006 claim 1 was changed to read "wherein the viewed section of the encoder-mark sequence carries redundant incremental position-change information at least in regions not disturbed by the index pattern" whereas it previously read "the length of which is greater than one position-change increment."

While there is certainly support in the description for this language (page 9, lines 10-15) it is noted that the new claim language is introduced in the specification with the phrase "In other words." Thus it appears that the change is no more than an exercise in creative writing with no change in the underlying device or what the claim is trying encompass.

Ohno et al. also provides a detector arrangement that would view more than one position change increment. The Ohno code sequence also "carries redundant incremental position change information at least in regions not disturbed by the index pattern" (Ohno's transformable sequence).

Regarding claim 7 and the language change to correlation to a threshold Ohno logic gate array (fig. 7) provides a test of whether the pattern is a transformable or absolute position mark. Ohno discloses the absolute mark as particular five bit patterns and the gate structure requires a correlation threshold of greater than four bits in other words it needs to match five bits.

Claims 1-4, 6-11, 13, 14, 16-19, 34, and 35 are rejected under 35 U.S.C. 102(b) as anticipated by Cunniff (US 5239177 A). Cunniff discloses a position encoder with a reference mark or "perfect word" as an index mark that can be incorporated into an incremental track (col. 2, lines 58-59). The length of the "perfect word sequence" is selected as a sequence with an odd number of bits (lines 45-47) with common lengths being 5, 7, 11 or 13 bits for the perfect word sequences. The system disclosed by Cunniff also uses a threshold reference for detection of the perfect word and that the recognition of a perfect word is contingent upon exceeding a desired threshold (col. 3, lines 41-55). The selection of the threshold must also "strike a balance" between correct reading of the perfect word and tolerable of false pulse generation. In other words, robustness of the system.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohno et al. (US 5565864 A) in view of Donahue et al. (US 6,155,669).

Ohno et al. limit their discussion to the position encoder and do not delve into the myriad number of applications for position encoding, the likes of which include fire control for tanks to printers. Ohno's detectors and analysis gates read a plurality of encoder marks and is thus seen as extracting the redundant incremental position-change information. Donahue et al. disclose a page width printer with plural print stations for the respective colors where each print station includes its own code reader. It would have been obvious to provide Donahue with an Ohno et al. type position encoder because it would provide the reliable print position control described by Donahue and reduction in memory requirements as disclosed by Ohno, which would be particularly beneficial where each print station is provided with its own position determination.

Claims 5, 12, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The art of record was not seen


to disclose the setting of a detected pattern to a correct pattern closest to the detected pattern.

Claims 20-24 and 29-33 are allowed. The art of record was not seen to disclose the use of selected thresholds as conditions for both the index mark and incremental position marks.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tullis et al. (US 6,246,050 B1) discloses a position encoder to detect relative motion and discusses having a first and second correlation but does not disclose an encoder pattern preferring to use natural features.

Any inquiry concerning this communication should be directed to Howard L. Williams at telephone number 571.272.1815. The Patent and Trademark Office central facsimile number for application specific correspondence intended for entry is 571-273-8300.

4/10/06  
Voice: (571) 272-1815

  
Howard L. Williams  
Primary Examiner  
Art Unit 2819